RADIAN
CORPORATION

Progress Center
3200 E. Chapel Hill Rd./Nelson Hwy.
P.O. Box 13000
Research Triangle Park, NC 27709
(919)481-0212

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RECD 5/17/94
FILE
ROUTE TO C.A. Neumayer
COPIES TO

Mr. Dan Sammons
Chief Chemist
Louisville Metropolitan Sewer District
4522 Algonquin Parkway
Louisville, Kentucky 40211

Dear Dan,

Enclosed is the summary analytical report for the ambient and gas monitoring well samples collected at the Lee's Lane Landfill site on August 24, 1993.

A map of the site has been labelled with the sample collection locations for your reference in Figure 1. Table 1 is a tabular summary for the ambient sample with the primary analytes required for submission to EPA.

The monitoring sites for this quarterly collection were chosen based on a combination of prevailing on-site meteorology and available sites in the adjacent residential neighborhood per the standard sampling protocol. Weather conditions were hazy, hot, and humid on the monitoring day with a slight wind from the southwest. Hourly readings of wind speed and direction from an off-site source were recorded by LMSD personnel. The meteorological data is summarized in Table 2. The ambient samples were collected 3-5 feet above ground level. The ambient samples collected were integrated over a 7-8 hour collection period in Summa® canisters.

The methane analysis was performed by GC/FID on a separate analytical column prior to the TO-14 analysis. The TO-14 analytical methodology by Gas Chromatography/Mass Spectrometry (GC/MS) was employed for this set of quarterly samples. The GC/MS was chosen to quantitatively confirm the presence of TO-14 compounds and other Tentatively Identified Compounds (Tic's).

Table 3 is a tabular summary of the gas well samples with the primary analytes required for submission to EPA. Each set of gas monitoring wells was screened with field monitors (OVA-128, combustible gas meter, and PhotoTip). The values for methane were recorded by the OVA-128. The OVA values were used to select the wellhead (S or D) for collection of the canister sample.

The methane analysis was done by Gas Chromatography/Flame Ionization Detection (GC/FID) at Radian's Perimeter Park Laboratory. Sample canisters and flow controllers

were cleaned and blanked by TO-12 for total hydrocarbons prior to field deployment. Samples were handled with standard laboratory chain of custody procedures. The GC/MS confirmation by TO-14 was subcontracted to Air Toxics Limited (ATL).

The laboratory determined methane results are consistent and at normal ambient concentrations for both the ambient air samples and the gas monitoring wells samples. But these laboratory results for methane are not in agreement with the field determined OVA and PhotoTip measurements. The field measurements from the OVA and PhotoTip (Table 4) are significantly greater than the laboratory methane results. Since the field measurements were so high before sampling, the field measurements were taken again after sampling. The results show the levels of the compound seen earlier had now decreased to below instrument detection limits. A possible explanation is that the gas is accumulating in the well pipe, especially due to the higher summertime temperature, and then when sampled, the gas is purged from the well. Since the laboratory determined methane results do not vary greatly from the past sampling periods, the compound(s) contributing to elevated field reading on site is likely a hydrocarbon compound other than methane. The presence a non-methane compound is supported by the on-site PhotoTip readings which were higher than the OVA. The PhotoTip is insensitive to methane.

The TO-14 results by GC/MS analysis of the Summa® canisters are generally at or below the analytical detection limits. Very few TO-14 compounds were detected in the ambient samples above the method detection limit. The presence of methylene chloride at 11 ppb was confirmed in 1 of the ambient air samples. However, some TO-14 compounds were detected in the gas well samples, especially those with higher field screening measurements. Three wells had other positive values for the TIC's estimated by the full scan GC/MS TO-14 analysis. These GC/MS results tend to verify the field data and may be something to focus on in future sampling periods.

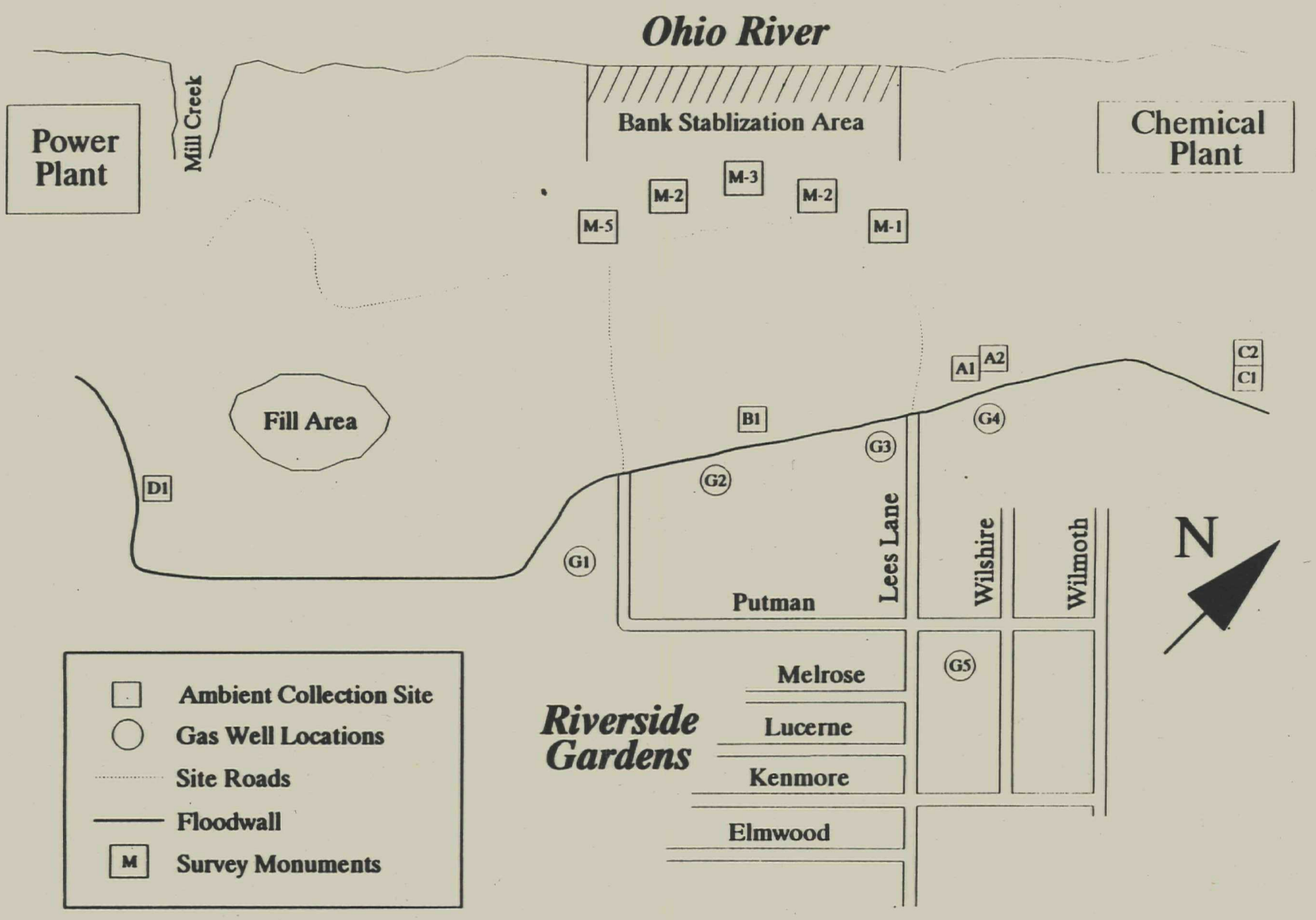
Radian appreciates the opportunity to assist your staff with this project. Please advise me at (919) 481-0212 if you have any questions.

Sincerely,

Robert F. Jongleux
Project Director

RFJ/pjsj116

Attachments



Not to scale.

Figure 1. Lees Lane Landfill Sampling Locations

TABLE 1

TO-14 DATA SUMMARY FOR AMBIENT AIR SAMPLES AT THE LEES'S LANE LANDFILL
LOUISVILLE, KENTUCKY

SAMPLING DATE: 8/24/93

Sample ID	AS-U1	AS-A1	AS-A2	AS-R1	AS-R2	AS-R3
Canister ID	A141767	A127729	A127724	A127727	A141762	911313
Location	Upwind	Downwind	Downwind	Residential	Residential	Residential
Dilution Factor	.7941	.9316	.8337	.8699	.9748	.7970
Compound (conc. in ppbv)						
Benzene	0.62	<0.50	0.60	<0.50	<0.50	0.58
Toluene	<0.50	5.30	<0.50	<0.50	<0.50	0.92
Xylene (total)	<0.50	<0.50	<0.50	<0.50	<0.50	0.52
Methylene Chloride	<0.50	11.0	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methane (ppm)	2.29	1.49	2.25	2.16	1.57	1.83

Note: less than values indicate compound was at or below the analytical detection limit.

TABLE 2

ON-SITE METEOROLOGICAL DATA
AUGUST 24, 1993

Time	Barometric Pressure (in Hg)	Humidity (%)	Wind Direction	Wind Speed (mph)	Observations
700	29.99	91	SW	1	Mostly Sunny
730	29.99	91	SW	1	Mostly Sunny
800	29.99	93	SW	1	Mostly Sunny
830	30.00	93	SW	1	Mostly Sunny
900	30.00	89	SW	2	Mostly Sunny
930	30.00	88	SW	2	Mostly Sunny
1000	30.02	85	SW	3	Mostly Sunny
1030	30.02	83	SW	4	Mostly Sunny
1100	30.02	72	SW	3	Mostly Sunny
1130	30.02	72	SW	2	Mostly Sunny
1200	30.03	72	SW	3	Mostly Sunny
1230	30.03	72	SW	3	Mostly Sunny
1300	30.03	72	SW	5	Mostly Sunny
1330	30.03	70	SW	5	Partly Cloudy
1400	30.02	70	SW	1	Partly Cloudy
1430	30.02	70	SW	2	Partly Cloudy
1500	30.14	41	SW	3	Partly Cloudy

** Compiled by LMSD personnel at Lee's Lane Landfill Site **

TABLE 3

TO-14 DATA SUMMARY FOR GAS MONITORING
WELL SAMPLES AT THE LEE'S LANE LANDFILL
LOUISVILLE, KENTUCKY

SAMPLING DATE: 8/24/93

Sample ID	AS-G1S	AS-G2S	AS-G3S	AS-G4D	AS-G5NV	AS-G5N	FBL
Canister ID	A127734	A127721	A141750	A141752	A127733	A127754	913413
Dilution Factor	.5762	.8284	.5468	.5376	.5490	.4003	1
Orifice	D-B1	D-33	D-6	D-104	D-8	D3	--
Compound (conc. in ppbv)							
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	1.1	<0.50
Toluene	<0.50	<0.50	<0.50	<0.50	<0.50	6.6	<0.50
Xylene (total)	<0.50	<0.50	<0.50	<0.50	0.54	0.56	<0.50
Methylene Chloride[a]	<0.50	<0.50	<0.50	<0.50	<0.50	1.7	<0.50
Vinyl Chloride	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methane (ppm)	1.70	0.05	1.40	0.57	0.92	2.30	ND

Note: Less than values indicate compound was at or below the detection limit

TABLE 4
FIELD DATA SUMMARY FOR GAS WELL MONITORING AT THE LEE'S LANE LANDFILL
LOUISVILLE, KENTUCKY

Gas Well	Description	OVA/FID (ppm)		H-NU (ppm)		MICROTIP[a] (ppm)		EXOTOX (ppm)		Well Sampled
		Pre-Sampling	Post-Sampling	Pre-Sampling	Post-Sampling	Pre-Sampling	Post-Sampling	Pre-Sampling	Post-Sampling	
1	Shallow	0.4	0	0	0	0	0	0	0	
		1.2	0	0	0	0	0	0	0	*
	Deep	0.6	0	0	0	0	0	0	0	
		0.6	0	0	0	0	0	0	0	
2	Shallow	80	0	0	0	>2500	0	0	0	*
		50	0	0	0	>2500	0	0	0	
	Deep	30	0	0	0	>2500	0	0	0	
		22	0	0	0	>2500	0	0	0	
3	Shallow	0	0	0	0	0	0	0	0	
		20	0	0	0	0	0	0	0	*
	Deep	10	0	0	0	0	0	0	0	
		6	0	0	0	0	0	0	0	
4	Shallow	0.6	0	0	0	0	0	0	0	
		0.6	0	0	0	0	0	0	0	
	Deep	1.4	0	0	0	0	0	0	0	*
		1	0	0	0	0	0	0	0	
5	North	20	0	0	0	>2500	0	0	0	*
		40	0	0	0	>2500	0	0	0	*
	South	10	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	

[a] Maximum reading possible with Microtip is 2500 ppm.